

over U.S. Patent No. 4,198,782 to Kydonieus et al. in view of U.S. Patent No. 3,950,891 to Hinkes. The claims also stand rejected as being obvious over Canadian Patent No. 1143651 to Lemon in view of U.S. Patent No. 3,950,891 to Hinkes.

Prior to addressing the rejections individually, Applicants would like to clarify the inventive subject matter of this application as covered in the claims under consideration. The present inventive subject matter relates to a method for the protection of germinating seeds from pesticides. The method provides that seed-containing pellets and **pesticide-containing pellets** are sown **as individual pellets** at the same time. It is important to note that the ratio of seed-containing pellets to pesticide-containing pellets is 1:1 at the time they are sown. Additionally, according to a preferred embodiment of the invention, the pesticide-containing pellets **have substantially the same size and shape** as the seed-containing pellets, and the pesticide-containing pellets contain the exact dose of pesticide that is sufficient for **one** seed germ. Also, each of the pellets has a diameter ranging from 0.5 to 5.0 mm.

Therefore, it is an important aspect of the present claims that the pesticide be administered in pellet form in order to provide better control over the dosing. Further, it is important that the seed-containing pellet and pesticide-containing pellets be sown at the same time in a 1:1 ratio. It will be shown below that

these important limitations of the present claims are not taught nor disclosed in the prior art references.

**1. Rejection of claims 1-6 under 35 U.S.C. 103(a)**

Claims 1-6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,198,782 to Kydonieus et al. in view of U.S. Patent No. 3,950,891 to Hinkes.

In particular, the Official Action states, in relevant part:

Regarding claim 1, Kydonieus teaches a method for protection of germinating seed with a pesticide (Col. 4 line 19-22), characterized in the seeds and pesticide containing pellets are sown as individual pellets at the same time (Fig. 4#15 and 16).

Kydonieus is silent on explicitly teaching a seed pellet. However, Hinkes teaches it is old and notoriously well-known in the art to pelletize seeds for ease of mechanical sowing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kydonieus to include a pelletized seed for precise mechanical planting for small seed sizes (Hinkes Col. 2 line 15-27).

Regarding claim 2, Kydonieus as modified teaches that the pesticide-containing pellets have substantially the same shape and size as the seed-containing pellets (Kydonieus Fig. 4 # 15 and 16).

Regarding claim 3, Kydonieus as modified inherently teaches pesticide-containing pellets comprise a dose of pesticide that is sufficient for one seed germ.

Regarding claim 4, Kydonieus as modified teaches the pesticide-containing pellets contain a filler material (Kydonieus Col. 3 line 68).

Regarding claim 5, Kydonieus as modified discloses that the pesticide-containing pellets and the seed-containing

pellets have a substantially uniform diameter Fig. 4 # 15 and 16), but is silent on the range from 0.5-5mm. However, it would have been obvious to one of ordinary skill in the art to modify the teachings to accommodate different seed varieties.

Regarding claim 6, Kydonieus as modified teaches a pesticide-containing pellet to be used in the combination with a seed-containing pellet (Kyondieus Col. 3 line 55-62 and Col. 4 line 19-22).

### RESPONSE

Applicants respectfully traverse these rejections. The references of record do not teach or suggest applicants' inventive subject matter as a whole as recited in the claims. The Examiner has failed to establish a *prima facie* case of obviousness against the presently rejected claims.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016,

1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

#### **A. Present Inventive Subject Matter**

The presently pending claims relate to a method for the protection of germinating seed. The method is characterized in that seed-containing pellets and **pesticide-containing pellets** are sown as individual pellets at the same time. The dependent claims add further limitations regarding the size and shape of the seed-containing pellets and the pesticide-containing pellets, and the dose of the pesticide provided with the sowing of the pelletized seed. Further, the coating covering the seeds used to form the seed-containing pellets acts as a shield to limit the negative effect of the pesticide on the seed during the germination process, or the seed's most vulnerable stage. (See specification page 2, lines 10-12)

#### **B. Disclosure of the Primary Reference**

In contrast, Kydonieus et al. disclose a method of controlling agricultural pests by applying a controlled-release pesticide **particle or granule** to the soil environment of a plant or seed. The pesticide is applied at the surface, or may be intermixed throughout or primarily at a desired depth. The pesticide particles are granulated laminated sheet material containing an

insecticide, which is **not** the same as the claimed invention of the use of a separate **pesticide-containing pellet**.

Applicants respectfully submit that granules can hardly be considered as pellets, with the latter having a substantially more uniform size distribution, which results in a correspondingly more uniform application of the pesticide. Further, according to Kydonieus et al., the pesticide granules are more or less randomly sown (Fig. 4, #16), which leads to an uneven dosing pattern of the pesticide, with some seeds being overexposed to the pesticide (and the resulting phytotoxic effects, as indicated in the current application at page 1, lines 7-14) and some seeds being underexposed. The present inventive subject matter claims sowing the seed-containing pellet and pesticide-containing pellet, separately, but at the same time. This allows the user to avoid underdosing or overdosing the seeds at the time of sowing. **This is neither taught, nor suggested by Kydonieus et al.**

Turning to the dependent claims, the Examiner argues that Fig. 4 of the Kydonieus et al. patent discloses that the seeds and pesticide "pellets" are substantially similar in size (claim 2). However, Applicants respectfully submit, as indicated above, that the "granules" of Kydonieus et al. are not "pellets" as claimed, and that a close inspection of Fig. 4 of the patent reveals that Kydonieus et al. do **not** disclose the seed-containing pellets and pesticide-containing pellets as being of similar shape and size.

Further the Examiner argues that it is inherent that Kydonieus et al. disclose the pesticide granules comprising a dose of pesticide sufficient for one seed germ (claim 3). Again, however, a close inspection of Fig. 4 shows that five granules are applied to two seeds, indicating a substantially higher granule to seed ratio than the claimed 1:1 ratio.

Likewise with claims 4 and 5, since they depend from claim 1, they necessarily contain all of the limitations found therein. Since Kyodenieus et al. do not disclose all of the limitations of claim 1 (as discussed above), so too, the reference also fails to disclose the limitations found in claims 5 and 6.

With respect to claim 6, Applicants reiterate the discussion above with respect to Kydonieus et al. failing to disclose the use of **pesticide containing pellets**. Rather, Kydonieus et al. teach the use of **granules** of pesticide. This is different than the claimed invention.

**C. The Secondary Reference does not teach the seed-containing pellet as required by the Presently Pending Claims**

Applicants respectfully submit that Hinkes does not remedy these deficiencies. Hinkes teaches a seed coating composition comprising at least 50% by weight of an amorphous silica, the remainder including at least about 5% by weight montmorillonite and at least about 10% by weight attapulgite. However, Applicants

respectfully submit that Hinkes does **not** disclose the use of a pesticide-containing pellet as is claimed in the present claims. Further, Hinkes fails to teach the other limitations as claimed, namely that the seed-containing pellet and pesticide-containing pellet are of similar shape and size and that the seed-containing pellet and pesticide containing pellet are sown at the same time in a 1:1 ratio.

Applicants, therefore, respectfully submit that the combination of the references would still **not** achieve the presently claimed subject matter since the combination would **still be deficient in the limitations set forth above**. As such, Applicants submit that the Examiner has failed to meet the burden of proving a *prima facie* case of obviousness, and the claims are not obvious over the references.

In summary, Applicants submit that the combination of references asserted by the Examiner fails to teach or suggest the presently claimed invention as detailed above. Thus, the presently claimed invention is unobvious over the cited references. Accordingly, applicants respectfully request the Examiner to reconsider and withdraw the rejection of pending claims 1-6.

## **2. Rejection of claims 1-6 under 35 U.S.C. 103(a)**

Claims 1-6 have been rejected under 35 U.S.C. 103(a) as being

unpatentable over Canadian Patent No. 1143651 to Lemon in view of U.S. Patent No. 3,950,891 to Hinkes.

In particular, the Official Action states, in relevant part:

Regarding claim 1, Lemon teaches a method for protection of germinating seed, characterized in the seed-containing pellets and pesticide-containing pellets are sown as individual pellets at the same time (Lemon, page 1, line 9, 10, 13; page 2 line 14-15; page 3 line 11-15). Lemon is silent on the seed being pelletized. However, Hinkes teaches it is old and notoriously well-known in the art to pelletize seeds for ease of mechanical sowing. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Kydonieus to include a pelletized seed for precise mechanical planting for small seed sizes (Hinkes Col. 2 line 15-27).

Regarding claim 2, Lemon as modified teaches that the pesticide-containing pellets have substantially the same shape and size as the seed-containing pellets (Lemon page 1 line 9-10).

Regarding claim 3, Lemon teaches pesticide-containing pellets comprise a dose of pesticide that is sufficient for one seed germ (Lemon page 1, line 13-19).

Regarding claim 4, Lemon teaches the pesticide-containing pellets contain a filler material (Lemon page 4 line 20-22).

Regarding claim 5, Lemon discloses that pesticide-containing pellets and the seed-containing pellets have a substantially uniform diameter from 0.5-5mm (Lemon page 3 line 25).

Regarding claim 6, Lemon teaches a pesticide-containing pellet to be used in the combination with a seed-containing pellet (Lemon page 1 line 9, 10, 13; page 2 line 14-15; page 3 line 11-15).



## RESPONSE

Applicants respectfully traverse these rejections. The references of record do not teach or suggest applicants' inventive subject matter as a whole as recited in the claims. The Examiner has failed to establish a *prima facie* case of obviousness against the presently rejected claims.

The U.S. Supreme Court in *Graham v. John Deere Co.*, 148 U.S.P.Q. 459 (1966) held that non-obviousness was determined under § 103 by (1) determining the scope and content of the prior art; (2) ascertaining the differences between the prior art and the claims at issue; (3) resolving the level of ordinary skill in the art; and, (4) inquiring as to any objective evidence of nonobviousness.

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) that some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (C.C.P.A. 1970).

### A. Present Inventive Subject Matter

The presently pending claims relate to a method for the protection of germinating seed, characterized in that seed-

containing pellets and pesticide-containing pellets are sown as individual pellets at the same time. The coating covering the seeds is not a pesticide. In fact, the coating covering the seeds used to form the seed-containing pellets is a critical aspect of the presently claimed invention as it acts as a shield to limit the negative effect of the pesticide on the seed during the germination process, or the seed's most vulnerable stage. (See specification page 2, lines 10-12)

#### **B. Disclosure of the Primary Reference**

In contrast, Lemon discloses a **mixture** of brassica seed and **granules containing bendiocarb (i.e. pesticide)**. Lemon does not disclose a seed-containing pellet as required by the presently pending claims. Again, Applicants respectfully submit that **granules** can hardly be considered as **pellets**, with the latter having a substantially more uniform size distribution, which results in a correspondingly more uniform application of the pesticide. Further, there is no teaching or suggestion in Lemon to sow the seed-containing pellets and the pesticide-containing pellets **together in a 1:1 ratio**. The present inventive subject matter claims sowing the seed-containing pellet and pesticide-containing pellet, separately, but at the same time, in a ratio of 1:1. This allows the user to avoid underdosing or overdosing the seeds at the time of sowing, which is not addressed in the Lemon

reference. In other words, these limitations **are neither taught, nor suggested by Lemon.**

Turning to the dependent claims, the Examiner argues that Lemon patent discloses that the seeds and pesticide ``pellets'' are substantially similar in size (claim 2). However, Applicants respectfully submit, as indicated above, that the ``granules'' of Lemon are not ``pellets'' as claimed, and that a close inspection of specification of the patent reveals that Lemon does **not** disclose **pesticide-containing pellets**. Further the Examiner argues that Lemon discloses the pesticide granules comprising a dose of pesticide sufficient for one seed germ (claim 3). Turning to the passage in Lemon that the Examiner recites (i.e., lines 13-19 of page 1), Applicants respectfully submit that the passage **is silent** with respect to seed-containing pellets and pesticide-containing **pellets** being administered in a 1:1 ratio. The passage only discusses the fact that Bendiocarb is remarkably useful against brassica pests. **It does not discuss the amount of pesticide to be sown with the seeds.**

Again, with respect to claims 4 and 5, since they depend from claim 1, they necessarily contain all of the limitations found therein. Since Lemon does not disclose all of the limitations of claim 1 (as discussed above), so too, the reference also fails to disclose the limitations found in claims 5 and 6.

With respect to claim 6, Applicants reiterate the discussion above with respect to Lemon failing to disclose the use of **pesticide containing pellets**. Rather, Lemon teaches the use of **granules** of pesticide. This is different than the claimed invention.

**C. The Secondary Reference does not teach the seed-containing pellet as required by the Presently Pending Claims**

As is the case with the first obviousness rejection, Applicants respectfully submit that Hinkes does not remedy the deficiencies of Lemon. Hinkes teaches a seed coating composition comprising at least 50% by weight of an amorphous silica, the remainder including at least about 5% by weight montmorillonite and at least about 10% by weight attapulgite. However, Applicants respectfully submit that Hinkes does **not** disclose the use of a pesticide-containing pellet as is claimed in the present claims. Further, Hinkes fails to teach the other limitations as claimed, namely that the seed-containing pellet and pesticide-containing pellet are of similar shape and size and that the seed-containing pellet and pesticide containing pellet are sown at the same time in a 1:1 ratio.

Applicants, therefore, again respectfully submit that the

combination of the references would still **not** achieve the presently claimed subject matter since the combination would **still be deficient in the limitations set forth above**. As such, Applicants submit that the Examiner has failed to meet the burden of proving a *prima facie* case of obviousness, and the claims are not obvious over the references.

In summary, Applicants submit that the combination of references asserted by the Examiner fails to teach or suggest the presently claimed invention as detailed above. Thus, the presently claimed invention is unobvious over the cited references. Accordingly, applicants respectfully request the Examiner to reconsider and withdraw the rejection of pending claims 1-6.

#### **CONCLUSION**

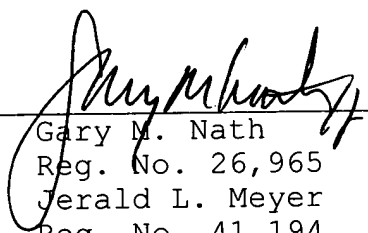
Based upon the above remarks, the presently claimed subject matter is believed to be novel and patentably distinguishable over the prior art of record. The Examiner is therefore respectfully requested to reconsider and withdraw the rejections of pending claims 1-6. Favorable action with an early allowance of the claims pending in this application is earnestly solicited.

If the Examiner has any questions or wishes to discuss this application, kindly telephone the undersigned at the below-listed number.

Respectfully submitted,

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